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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/653,556 | 09/02/2003 | Bum-Gee Back | YOM-0051 | 3225 |
| 23413 | 7590 | 04/18/2005 | EXAMINER | |
| CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002 | | | HU, SHOUXIANG | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2811 | |

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/653,556

Applicant(s)

BAEK ET AL.

Examiner

Shouxiang Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 8-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 5-7 and 16-36 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 08-17-2004

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 8-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 2001/0019126) in view of Lee (US 2002/0041347).

Kim discloses a contact structure in a thin-film transistor display device (Fig. 15; also see Paragraphs 0027 and 0028), comprising: a lower conductive film (30; it is naturally dry-etchable as it is formed of Cr) and an upper conductive film (32; formed on the lower film and including Al alloy) in a gate conductive layer formed on a insulating substrate (200), the upper film having edges located on the lower film; an insulator (42) having a contact hole exposing at least a portion of the lower film (at the gate pad portion); and a transparent pixel electrode layer (44, including 44a, 44b and/or 44c)

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formed on the insulator and contacting the lower film through the contact hole, wherein the side of the upper conductive film (32) has a surface exposed in the contact hole; and, an upper portion of such a surface can be regarded as an upper surface that is in directed contact with the transparent pixel electrode layer (44b).

Although Kim does not expressly disclose that the transparent pixel electrode layer can be formed of IZO, one of ordinary skill in the art would readily recognize that IZO is a commonly used material for forming a good transparent conductive pixel layer, as evidenced in Lee (see Paragraphs 0011 and 0041).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the IZO pixel layer into the device of Kim, so that a LCD device with a pixel layer having good transparency, and/or good conductivity, and/or with improved material choice and/or flexibility would be obtained.

Regarding claims 3 and 12, it is noted that at least two sides of the gate pad structure is commonly symmetric in the art, as evidenced readily in the prior art such as Ahn et al. (US 6,338,989; see the gate pad 41 in Fig. 3).

Regarding claims 8-15, the device of Kim further includes: a gate insulating layer (34); a semiconductor layer (36); a data conductive layer (38 and 40); a passivation layer (the insulator 42); and a drain electrode (41b).

Regarding claim 14, it is noted that the thickness of a refractory metal (Cr) layer in a gate electrode layer such as the one of Kim is an art recognized parameter of importance subject to routine experimentation and optimization, and that the recited

thickness of about 500 Angstroms is well within the art commonly recognized range in such a gate electrode layer.

Response to Arguments

Applicant's arguments filed on 01-31-2005 have been fully considered but they are not persuasive, as explained below.

The transparent pixel electrode layer (44b in Fig. 15) of Kim is in deed in contact with an upper surface of a side surface of the second conductive film (32) in the contact hole. And, it is noted that the term of "an upper surface" of a film does not have to be interpreted as meaning: the top surface of the film.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH
April 14, 2005



SHOUXIANG HU
PRIMARY EXAMINER